I claim:

1. A system for driving a caisson into the ground, comprising:
a plurality of vibratory devices, where each vibratory device generates a vibratory force;
a clamp assembly for rigidly securing each of the vibratory devices to one of a plurality of predetermined angularly spaced locations about the caisson; and
a timing system operatively connecting the plurality of vibratory devices to synchronize the vibratory forces generated thereby.

2. A system as recited in claim 1, in which:
one of the vibratory devices is a master vibratory device;
another vibratory device is a slave vibratory device; and
the timing system causes the slave vibratory device to generate vibratory forces based on the operation of the master vibratory device.

3. A system as recited in claim 1, in which the timing system comprises:
at least one gear box; and
a plurality of shafts; where
each shaft extends between one of the vibratory devices and the at least one gear box; and
operation of one of the vibratory devices causes operation of another of the vibratory devices through the at least one gear box and the plurality of shafts such that the vibratory forces generated by the vibratory devices are synchronized.

4. A system as recited in claim 1, further comprising:
a crane assembly; and

a suspension assembly connected between the crane assembly and the vibratory devices for inhibiting transmission of vibratory forces to the crane assembly.

5. A system as recited in claim 1, in which:
one of the vibratory devices is a master vibratory device;
the other vibratory devices are slave vibratory devices; and
the timing system causes the slave vibratory devices to generate vibratory forces based on the operation of the master vibratory device.

6. A system as recited in claim 5, in which the timing system comprises:
a plurality of gear boxes; and
a plurality of shafts; where
a first shaft extends from the master vibratory device to a first gear box;
a second shaft extends from the first gear box to a first slave vibratory device;
a third shaft extends from the first slave vibratory device to a second gear box; and
a fourth shaft extends from the second gear box to a second slave vibratory device; wherein
operation of the master vibratory device causes operation of the first and second slave vibratory devices through the first and second gear boxes and the first, second, third, and fourth shafts such that the vibratory forces generated by the first and second slave vibratory devices are synchronized with the vibratory forces generated by the master vibratory device.

7. A system as recited in claim 5, in which the timing system comprises:
first, second, and third gear boxes; and

a plurality of shafts; where

a first shaft extends from the master vibratory device to the first gear box;

a second shaft extends from the first gear box to a first slave vibratory device;

a third shaft extends from the first slave vibratory device to the second gear box;

a fourth shaft extends from the second gear box to a second slave vibratory device;

a fifth shaft extends from the second slave vibratory device to the third gear box; and

a sixth shaft extends from the third gear box to a third slave vibratory device; wherein

operation of the master vibratory device causes operation of the first, second, and third slave vibratory devices through the first, second, and third gear boxes and the first, second, third, fourth, fifth, and sixth shafts such that the vibratory forces generated by the first, second, and third slave vibratory devices are synchronized with the vibratory forces generated by the master vibratory device.

8. A system as recited in claim 1, in which the timing system interconnects the vibratory devices in a daisy chain configuration to synchronize the vibratory forces generated by the vibratory devices.

9. A system as recited in claim 1, in which:

each vibratory device comprises at least two eccentric weights; and

the timing system is operatively connected between the vibratory devices such that the eccentric weights rotate at substantially the same speed.

10. A system as recited in claim 9, in which the timing system comprises:

at least one gear box; and

a plurality of shafts; where
each shaft is operatively connected between one of the eccentric weights and the at least one gear box; and
the shafts are rotated with the eccentric weights such that the eccentric weights rotate in synchrony with each other.

11. A system as recited in claim 5, in which:
each vibratory device comprises at least two eccentric weights; and
the timing system comprises
at least one gear box; and
a plurality of shafts; wherein
each shaft is operatively connected between one of the eccentric weights and the at least one gear box; and
the shafts rotate based on rotation of the eccentric weights of the master vibratory device such that the eccentric weights of the slave vibratory devices rotate in synchrony with eccentric weights of the master vibratory device.

12. A method of connecting a crane assembly to a caisson to drive the caisson into the ground, comprising:
providing a plurality of vibratory devices for generating vibratory forces;
connecting the plurality of vibratory devices to the crane assembly such that transmission of vibratory forces from the vibratory devices to the crane assembly is inhibited;
rigidly securing each of the vibratory devices to one of a plurality of predetermined angularly spaced locations about the caisson;
operating each of the plurality of vibratory devices such that the vibratory devices each generate a vibratory force;
operatively connecting the plurality of vibratory devices together to synchronize the vibratory forces generated thereby.

13. A method as recited in claim 12, further comprising the steps of:

identifying one of the vibratory devices as a master vibratory device; and

identifying another vibratory device as a slave vibratory device; wherein

the step of operatively connecting the plurality of vibratory devices further comprises the step of operating the slave vibratory device to generate vibratory forces based on the operation of the master vibratory device.

14. A method as recited in claim 12, in which the step of operatively connecting the plurality of vibratory devices further comprises the step of interconnecting the vibratory devices in a daisy chain configuration to synchronize the vibratory forces generated by the vibratory devices.

15. A method as recited in claim 12, in which:

the step of providing the plurality of vibratory devices comprises the step of providing at least two eccentric weights; and

the step of operatively connecting the plurality of vibratory devices further comprises the step of operatively connecting the vibratory devices such that the eccentric weights rotate at substantially the same speed.

16. A method as recited in claim 15, in which the step of operatively connecting the plurality of vibratory devices further comprises the steps of:

providing at least one gear box;

providing a plurality of shafts;

operatively connecting each shaft between one of the eccentric weights and the at least one gear box; and

rotating the shafts with the eccentric weights such that the eccentric

weights rotate in synchrony with each other.

17. A system for driving a large diameter caisson into the ground, comprising:

a plurality of vibratory devices, where each vibratory device comprises:

a housing; and

eccentric weights mounted within the housing, where rotating the eccentric weights in opposite directions generate vibratory forces;

a clamp assembly for rigidly securing each of the vibratory devices to one of a plurality of predetermined angularly spaced locations about the caisson;

a suspension assembly connected to the vibratory devices for inhibiting transmission of vibratory forces; and

a timing system comprising

at least one gear box, and

a plurality of shafts; where

each shaft extends between the eccentric weights of one of the vibratory devices and the at least one gear box; and

rotation of the eccentric weights of one of the vibratory devices is transmitted to rotation of the eccentric weights of another of of the vibratory devices through the at least one gear box and the plurality of shafts such that the vibratory forces generated by the vibratory devices are synchronized.

18. A system as recited in claim 17, in which:

one of the vibratory devices is a master vibratory device;

another vibratory device is a slave vibratory device; and

the timing system causes the slave vibratory device to generate vibratory forces based on the operation of the master vibratory device.

19. A system as recited in claim 18, in which the timing system interconnects the vibratory devices in a daisy chain configuration to synchronize the vibratory forces generated by the vibratory devices.